The Need to Rehabilitate the St. Mary Facilities

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The Issue

2003 leak in St. Mary Siphon as it crosses the St. Mary River

The U.S. Bureau of Reclamation's (USBR) St. Mary Facilities of the Milk River Project are in urgent need of rehabilitation. The St. Mary Facilities, located on the Blackfeet Reservation in Glacier County, consists of a storage dam (Sherburne Dam), diversion dam, head gate, 29 miles of canal, two sets of steel siphons, and 5 concrete drop structures. This system, which brings water from the St. Mary River Basin to the Milk River Basin, has been in operation for over 85 years with only minor repairs and improvements since its original construction. Most of the structures have exceeded their design life and are in need of major repairs or replacement. The capacity of the system has dropped from a design capacity of 850 cubic feet per second (cfs) to approximately 670 cfs. The steel siphons are plagued with slope stability problems and leaks, and the concrete in the drop structures is severely deteriorating. Landslides along the canal and condition of the structures make the canal unreliable as a water source. Failure of one of the drop structures in 2002 resulted in the canal being turned off for approximately 2 months during the irrigation season. The economy of the Hi-Line region has been built around the stable water supply provided by the St. Mary Facilities. Without the needed rehabilitation the aging system may soon suffer catastrophic failure. Loss of the St. Mary Facilities will have a disastrous economic impact on the Milk River Basin and the state of Montana in general.

Background and History

The first residents of the Milk River Watershed were Indian tribes. The Blackfeet (comprised of three bands – the Blood, Piegan and Blackfeet), the Gros Ventre, Assiniboine, Chippewa, and Cree were among the Tribes occupying different areas of the watershed. The vagaries of carving out a successful existence in the Milk River valley deterred permanent white settlement on the American side of the border until James J. Hill brought the Great Northern Railroad through the Hi-Line region in 1887.

In addition to the settlement momentum created by the coming of the railroad, the federal government encouraged agricultural settlement in the West

through the Homestead Act (1862) and Desert Land Act (1877). The Homestead Act gave the farmer 160 acres 'free', except for a small filing fee. After a five-year period of working the land, the homesteader got full title to it upon payment of a nominal fee per acre. The Desert Land Act allowed the homesteader to obtain a full section of land (640 acres) for only $1.25 per acre, if the land was worked and irrigated within three years. At first, the Desert Land Act did not provide much benefit to Montana farmers because few of them could meet the expensive challenge of bringing water to lands far from a water source. During the 1880s, settlers in the Milk River Basin built small individual irrigation systems and, in 1890, constructed a community diversion dam in the vicinity of the present Fort Belknap Diversion Dam. However, the election of Theodore Roosevelt in 1901, and passage of the Reclamation Act of 1902 changed the course of irrigated agriculture in the Milk River Watershed forever.

The Reclamation Act authorized construction and maintenance of irrigation works for the storage, diversion and development of waters for reclamation of specified lands. Secretary of the Interior Ethan Allen Hitchcock conditionally authorized the Milk River Project (Project) on March 4, 1903. The Project has the distinction of being one of the first irrigation projects initiated by the new Reclamation Service (now the Bureau of Reclamation) under the Reclamation Act of 1902. Some local historians credit the friendship between President Theodore Roosevelt and John Willis, a hunting guide and rancher who lived on Big Dry Creek southeast of Glasgow (now part of the Big Dry Arm under Fort Peck Reservoir), for quick authorization of the Project. The Project's objective was to provide a stable source of water for irrigation of the lower Milk River valley. Settlers moved to the valley on the promise of a stable supply of water for irrigation. Early settlers had learned that natural flows in the Milk River did not provide a reliable water source for irrigation in the downstream end of the watershed. Consequently, a plan to divert water from the St. Mary River to augment flows in the Milk River was a key component of the Milk River Project.

The St. Mary Facilities

Starting on the east side of the Rocky Mountains in what is now Glacier National Park, the St. Mary River flows north into Canada. In 1891, the U.S. Department of Agriculture began an investigation aimed at securing a viable water supply to augment low summer flows in the Milk River. The study determined that the most feasible alternative was a trans-basin diversion of water from the St. Mary River into the North Fork of the Milk River. Since the St. Mary River is located within the Hudson Bay Drainage Basin, any diversion of water would have to cross the drainage divide between the Hudson Bay and Gulf of Mexico drainage basins.

In 1901, Cyrus Babb conducted surveys to find the most feasible route of bringing water from the St. Mary River to the Milk River. As reported in their 1903-1904 Annual Report, the Reclamation Service had narrowed it down to three proposals regarding possible use of the St. Mary River:

1. Divert water to the North Fork of the Milk River through Canada to the lower Milk River Valley
2. Use water from the St. Mary River on the east side of the Blackfeet Reservation.
3. Divert St. Mary water across the North and South Forks of the Milk River to Cutbank Creek, down the creek and into the Marias River for 100 miles, into Big Sandy Creek.

Although the first option was considered the most viable, the third option was also considered because the U.S. was concerned Canadians would take water from the Milk River as it flowed through Alberta.

On March 25, 1905, Secretary of the Interior Hitchcock authorized construction of the St. Mary Diversion Dam and Canal, and $1 million was set aside to begin construction. In 1906, bids were requested for excavation of the first 15 miles of the St. Mary Canal, as well as for concrete lining of 14,000 feet of canal. The canal was to have an 850 cfs capacity. Construction began on July 27, 1906.

The Spite Ditch

At the same time the U.S. was developing plans to divert water from the St. Mary River, Canadian interests were planning for large-scale irrigation development in southern Alberta. In 1902, Canada asked the U.S. not to proceed with plans to develop an American St. Mary Canal because it would be "injurious to Canadian interests". Canada, concerned over the potential loss of St. Mary River water to Montana, began searching for a feasible way to divert Milk River water, or re-divert St. Mary water, for irrigation use between Raymond and Lethbridge, Alberta. In 1903, the Canadian North West Irrigation Company began building a Canadian Milk River Canal.

Construction of the Canadian canal, commonly know as the "Spite Ditch", alarmed Montana irrigators and the Reclamation Service who prompted the U.S. Government to protest. President Roosevelt and Congress responded by refusing to recognize Canada's right to the water she was proposing to use.

American and Canadian actions and reactions finally brought the U.S. and Canada together to negotiate. The Boundary Water Treaty of 1909 was the result. Article VI of the treaty expressly provides for apportionment of the St. Mary and Milk Rivers. The treaty established the measurement and diversion of water between Alberta and Montana; apportionment was to be administered by the International Joint Commission (IJC). The actual apportionment methodology and division of waters was hotly debated for a number of years before being settled on October 4, 1921.

In 1912, the Reclamation Service recommended construction of a storage dam on Lake McDermott (now Lake Sherburne). The earth embankment dam would store water from Swiftcurrent Creek, a tributary of the St. Mary River. Construction of Sherburne Dam was initiated in 1914 and completed in 1919. Water from Lake Sherburne is released to Swiftcurrent Creek and diverted to Lower St. Mary Lake via the Swiftcurrent Dike.

The St. Mary Diversion Dam is located 0.75 miles downstream from Lower St. Mary Lake. The St. Mary Canal begins at the St. Mary Diversion Dam on the west side of the St. Mary River and crosses the river 9.5 miles below the diversion through two 90-inch, riveted steel-plate siphons 3,600 feet in length. Eight miles

below the St. Mary crossing a second set of riveted steel-plate siphons, 78 inches in diameter and 1,405 feet long, conveys the water across Hall's Coulee. A series of five concrete drops at the lower end of the 29-mile canal provide a total fall of 214 feet to the point where the water is discharged into the North Fork of the Milk River. On average, 150,000 acre-feet of water per year are transferred over the Hudson Bay / Gulf of Mexico divide to the North Fork of the Milk River. The water then flows for 216 miles through Alberta, Canada, before returning to Montana where it is stored in Fresno Reservoir 14 miles east of Havre. Releases from Fresno Reservoir provide irrigation and municipal water along the Milk River to its mouth near Nashua, 200 miles to the east.

Building the St. Mary Siphon

Importance of St. Mary River Basin Waters to the Milk River Basin

The St. Mary Facilities are the keystone to large-scale irrigated agriculture in the Milk River Basin. The system provides water to irrigate over 110,000 acres on approximately 660 farms within the Bureau of Reclamation's Milk River Project. Together, these farms produce approximately 8.3% of all cattle / calves produced in the State and approximately 7.8% of all irrigated hay and 8.2% of all irrigated alfalfa produced in Montana (Table 1).

Table 1: Agricultural Statistics for a Portion of the Milk River Basin

County	All Cattle / Calves	All Irrigated Hay (tons)	Alfalfa Irrigated (tons)
Blaine	72,500	94,270	78,140
Phillips	78,100	67,140	48,640
Valley	63,800	81,920	71,080
Total	214,400	243,330	197,860
Montana	2,595,000	3,118,400	2,419,900
% of State Total	8.26%	7.80%	8.18%

Source: National Agricultural Statistics Service.
Data are 10 yr average from 1993 - 2002

Although the St. Mary Facilities were originally built to provide irrigation water, the beneficiaries extend far beyond irrigated agriculture. The Milk River

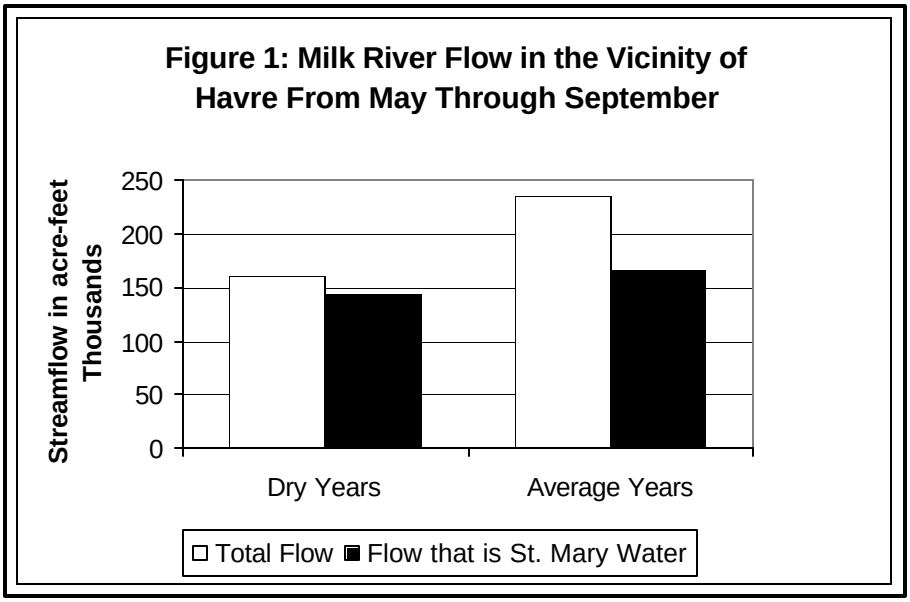
provides municipal water to approximately 14,000 people in the communities of Havre, Chinook, and Harlem (Table 2). In addition, two rural water systems are supplied from Fresno Reservoir. Beneficiaries also include fisheries, recreation, tourism, water quality, and wildlife.

Table 2: Municipal Water Use From the Milk River

Community	10 Year Average		US Bureau of Reclamation Contract Amount	
Havre	1,800 ac-ft/yr	1.6 mgd	2,800 ac-ft/yr	2.5 mgd
Chinook	400 ac-ft/yr	0.36 mgd	700 ac-ft/yr	0.62 mgd
Harlem	180 ac-ft/yr	0.16 mgd	500 ac-ft/yr	0.45 mgd

ac-ft/yr = acre-feet per year mgd = million gallons per day
Source: U.S. Bureau of Reclamation

In a normal irrigation season (May through September), approximately 70 percent of Milk River flow near Havre originates from the St. Mary River Basin (Figure 1). In dry years the imported water may make up to 90 percent of the Milk River flows past Havre. During the drought of 2001, 95 percent of available water in the Milk River originated in the St. Mary River Basin!



Source: U.S. Bureau of Reclamation

Failure of the St. Mary Facilities would be catastrophic to the Hi-Line economy of north central Montana. The stable supply of irrigation water provided by the system secures the "backbone" of the region's agricultural economy. Without imported water from the St. Mary River Basin, irrigated agriculture, as we know it in the Milk River Basin, and the influx of local dollars generated by it, will cease to exist. Failure of the canal, siphons, or drop structures may also result in environmental damage on the Blackfeet Reservation and in southern Alberta.

Existing Status of the St. Mary Facilities

Buckled piece of pipe replaced in 2001

The St. Mary Facilities are approaching 100 years old and are still dependent on the same basic infrastructure built by the Reclamation Service in the early 1900's. As authorized in 1903, the Milk River Project is a single-use irrigation project. At the time, irrigated agriculture was seen as the primary beneficiary of Project construction. As a result, over the last 85 years, 100% of the cost to operate and maintain Project infrastructure, including the St. Mary Facilities, has been borne by irrigators within the Project through an annual assessment on their irrigated lands. However, according to the USBR, ongoing costs of maintaining the aging system, including the St. Mary Facilities exceeds the irrigator's operation and maintenance payments. As a result, the St. Mary Facilities have deteriorated to the point that replacement and major rehabilitation is necessary. Since 1999, the State of Montana has awarded over $400,000 in grants, and the eight irrigation districts within the Milk River Project have contributed $200,000 for crucial repairs merely to keep system operating in some capacity.

The *Chippewa Cree Tribe of the Rocky Boy's Reservation Indian Reserved Water Rights Settlement and Water Supply Enhancement Act of 1999* (Public Law No. 106-103) directed USBR to conduct a regional feasibility study of north central Montana. The purpose of the study was to identify present and potential water supplies, water uses and management, major water-related issues, and opportunities to resolve these issues.

In March 2003, USBR released the first of two reports related to the feasibility study process. The objectives of the *North Central Montana Alternatives Scoping Document* are to identify major water-related issues and opportunities, as stated in the 1999 legislation, and to develop alternative plans to address them. Based on an appraisal level study within this draft report, the USBR estimates construction cost for rehabilitating the St. Mary Facilities are between $75 million and $125 million depending on canal capacity (500 cfs to 1,000 cfs). Rehabilitating the system to its original design capacity of 850 cfs is estimated to cost approximately $90 million.

In the spring of 2003, USBR completed the regional feasibility study, and a report was submitted to USBR Commissioner John Keys in June 2003. Commissioner Keys has forwarded the draft report to the Office of Management and Budget for

review. However, the report is not a typical USBR feasibility study. The report does not include a preferred alternative, National Environmental Policy Act (NEPA) evaluation, economic evaluation, or a cultural resources survey. As such, USBR has not produced a report with a recommended plan sufficient to present to Congress for authorization and funding.

In addition to the huge monetary cost, rehabilitating the St. Mary Facilities will involve complex political and legal considerations. USBR studies indicate that the St. Mary diversion facilities are having a negative impact on the bull trout (*Salvelinus confluentus*), which is listed as a threatened species. Rehabilitation of the system will involve two Federal Indian Reserved Water Right Compacts. The Fort Belknap Water Rights Compact is predicated on the continued viability of the St. Mary Facilities to deliver water to the Milk River Basin. The Compact is a delicate negotiated balance of water rights, including the Gros Ventre and Assiniboine Tribes' right to essentially all of the natural flow of the Milk River, subject to the claims of the Blackfeet Nation. The St. Mary Facilities are located on the Blackfeet Indian Reservation. The State and the Blackfeet Tribe are in negotiations for a water rights compact that will include claims for water from the St. Mary and Milk rivers. The Blackfeet Tribe must be consulted on any rehabilitation of the St. Mary Facilities. Canadian and U.S. differences over interpretation of the 1921 International Joint Commission Order on apportioning flows of the St. Mary and Milk Rivers must also be worked out.

Milk River Project Irrigators pose with legislators from the Long-Range Planning Committee and the Natural Resource Committee in front of a section of the St. Mary Siphon on the back lawn of the Capitol in Helena in January 2003. From left to right are: Bim Strausser, Randy Reed, Max Maddox, Rep. Christine Kaufmann, Rep. John Musgrove, Rep. Jeff Pattison, Rep. Dave Kasten, Kay Blatter, Melvin Novak, Sen. Joe Tropila, Sen. Linda Nelson, Jack Gist, Rep. John Witt, Rep. Rick Ripley, John Lacey, and Sen. Bill Tash

What Does the Future Hold?

Although originally built to supply irrigation water to the lower Milk River Basin, the importance of the St. Mary Facilities reaches far beyond irrigated agriculture. However, operation and maintenance costs are still borne primarily by irrigators on approximately 660 farms within the USBR's Milk River Project.

The cost of rehabilitating and replacing the structures of the St. Mary Facilities will be substantial. It will take a cooperative partnership of all water users in the basin - municipal, tribal, recreational, and irrigated agriculture - to raise the capital necessary to rehabilitate the aging structures that deliver water to the Milk River Basin. The partnership must also include state and federal governments. Without significant federal and state funding assistance local governments and water users will never be able to afford the repairs.

The economy of the Hi-Line region has been built around the stable water supply provided by the St. Mary Facilities. It will take a well-coordinated and cooperative basin-wide effort to secure rehabilitation of the St. Mary Facilities, and ensure the economic viability of the Milk River Basin for present and future generations.

Sources of Information

Information for this document was compiled from a number of sources. While every attempt has been made to ensure accuracy, some errors will undoubtedly exist. For this the writer apologizes.

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Additional Historical Research provided by Joan Specking, Historian, Montana Reserved Water Rights Compact Commission.

U.S. Bureau of Reclamation web site: http://www.usbr.gov.dataweb/html/milkriver.html